Feb. 21, 1950 D. B. ROSENBLATT 2,498,507

CIGARETTE LIGHTER

Filed Sept. 7, 1946

Fig. 1

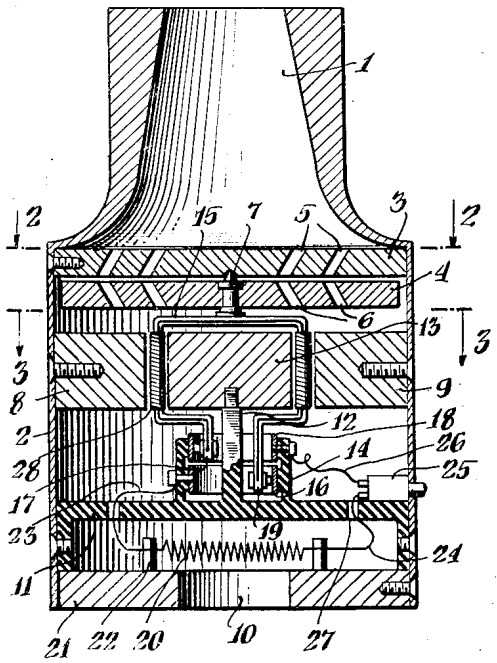


Fig. 2

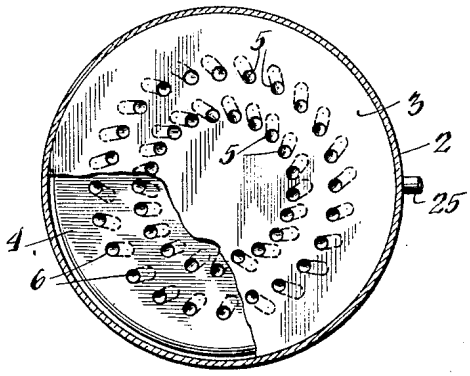


Fig. 3

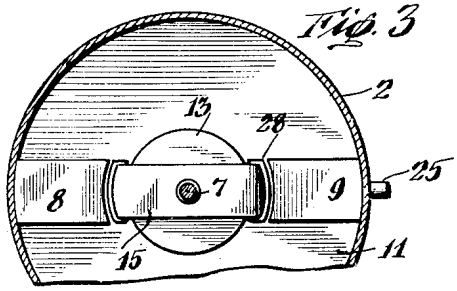
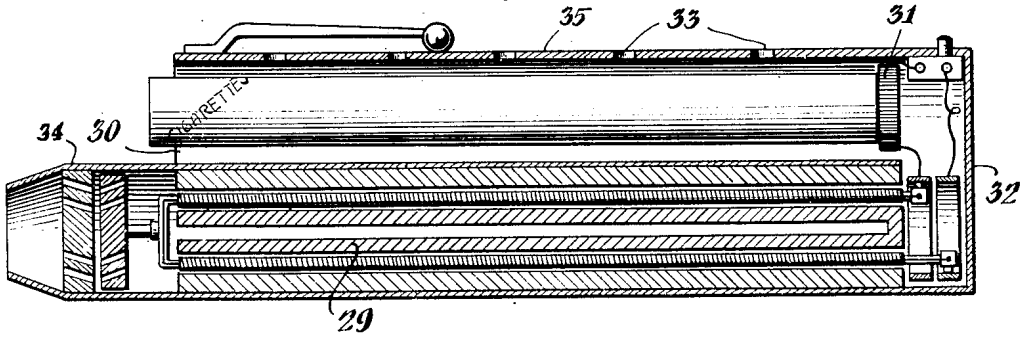


Fig. 4



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Patented Feb. 21, 1950 2,498,507

UNITED STATES PATENT OFFICE

2,498,507

CIGARETTE LIGHTER

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Application September 7, 1946, Serial No. 695,429

2 Claims. (Cl. 219—32)

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This invention relates to a cigarette lighter.

Its object is to provide a lighter which does not require refueling and is free from all danger attending inflammable fuels. A further object is a cigarette lighter which will work in rain or wind, is always ready for use and does not produce a visible light. Generally, the invention has the purpose to create a dependable lighter which has a long duration of usefulness with no necessity of constant servicing.

To accomplish these ends, the invention contemplates an electric lighter in which a current of air, produced by blowing into the device, drives a small generator which furnishes the necessary current to a heater element. Special provision is made to convert a maximum amount of mechanical energy into electric power and to assure the lighting of the cigarette by a brief and comparatively weak current impulse.

My invention will be described with reference to the accompanying drawings, of which

Fig. 1 is a longitudinal section through the device;

Fig. 2 is a cross section on lines 2—2 of Fig. 1;

Fig. 3 is a similar section on lines 3—3 of Fig. 1;

Fig. 4 is a longitudinal section, somewhat diagrammatical, through a modification of the invention.

Referring to the drawings it will be seen that the device comprises a mouth piece 1 of a shape and form to be held between the lips of the operator. Attached to this mouth piece, and preferably made of one piece with it, is a circular housing 2. Across the course of the incoming air is a stationary disc 3 which is held in the wall of the housing by means of a screw or similar fastener. Subjacent the stationary disc is a rotary disc 4. The two discs are provided with sets of holes, numbered 5 and 6 in the drawings. The holes are drilled obliquely through the discs and each set of holes is slanted oppositely to the other set. The slants are in a double direction, that is, in the plane of a longitudinal section, as drawn in Fig. 1, and also rearwardly and forwardly of such cutting plane. This latter slant appears best in the view of Fig. 2.

The rotatable seating of disc 4 is accomplished by a pivot 7 which is mounted in the stationary disc 3. Screws, counter sunk in the wall of the housing 2, suspend pole pieces 8 and 9 and a central core 13 is disposed on an upright 12 which extends from an annular flanged support 11. An armature 15 surrounds the central core in loop form and is carried by the free end of the pivot 7. The armature is thus adapted to rotate together with the rotor 4. The armature terminates at its lower end in two metal blocks or carbon brushes 17 and 19. Each of these brushes slides on a separate metal ring 16 and 18, which rings are insulated against each other and sustained on a carrier ring 14. The latter ring projects upwardly from the flanged support 11 and, in the embodiment shown, is formed as an integral part with it.

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The housing has an end plate 21 in which a vent hole 10 is provided and which also supports at its interior face two binding screws 22 for holding a resistance element 20. One of the terminals of the resistance is directly connected by wire 23 to the ring 17. The other terminal has a wire connection 24 to a switch 25 which, in turn, is connected by wire 26 to the ring 18. The just mentionad wire connections 23 and 24 pass through apertures in the flanged support 11, as indicated at 27.

The device operates as follows:

The mouth piece 1 is inserted in the operator's mouth. Upon blowing vigorously into the device a stream of air is directed through the sloping holes 5 in stator 3 and against the walls of the holes 6 of rotor 4. The ensuing revolving movement of the rotor carries with it the armature and thus causes the coil 28 to cut the lines of force of the field. The E. M. F. thus induced is transmitted through slip brushes 17 and 19 to stationary rings 18 and 16. Preferably, the switch 25 should remain open until the armature has acquired a certain momentum. The sudden closing of the switch allows all of this momentum to be converted into electrical energy to light the cigarette which is brought into contact with the heating element through vent hole 10.

It will be appreciated that the main obstacle of a device of this kind, the supply of sufficient mechanical force by a stream of air blown from the mouth of a human being, is overcome by the provision of the rotor and stator element and the described arrangements of oppositely slanting sets of holes. This, together with the accumulation of kinetic energy during the open position of the switch, will keep the loss of energy to a minimum. It will also be understood that a comparatively small amount of electrical power is necessary since the blast of air through the housing aids further in the ignition of the cigarette as it is being held against the heating element.

Enlarging on this last mentioned feature, I have shown in Fig. 4 a modification, in which the draft caused by the flow of air is further utilized in lighting the cigarette. The device

of this embodiment has a separate compartment for holding the cigarette while it is being lit. The compartment is formed by the laterally enlarged bottom **32** of the housing, the intermediate wall **34** and the side wall **35**. The resistance element is disposed at the lower end of the cigarette compartment, close to, but spaced from the bottom **32**. Vent holes **33** are provided in the side wall **35**. Otherwise, the device is similar to that shown in Fig. 1 except that the central core has been shown as a magnet of the conventional U form.

The air in this modification is directed from the bottom plate **32**, which acts somewhat as a baffle plate, against the resistor element and, thence, through the vent holes **33**. The cigarette can easily be slipped into the operator's mouth by tilting the lighter. The device thus can be manipulated with one hand.

It should be manifest that a number of modifications are possible without departing from the spirit of the invention. For instance, the armature could be provided with slip rings and the current could be taken from the slip rings by brushes in the manner well-known in the electrical art. It should also be a matter of choice whether to provide the magnetic field on the rotor or on the stator. Furthermore, any other form of heating element may be chosen instead of a resistance wire.

I, therefore, do not wish to be limited otherwise than by the language of the appended claims.

What I claim is:

1. A cigarette lighter comprising in combination a housing, a mouth piece through which air may be blown into said housing, an air motor disposed within said housing in the path of air movement therein to be driven thereby, an electrical generator driven by said motor to generate an E. M. F., a filamentary resistance element connected to said generator to receive the electrical output therefrom, a switch to open and close the connection between said resistance element and said generator, and said housing having a passage communicating with said resistance element to receive and position the end of a cigarette in contact with said resistance element and to direct the air blown into said housing against said cigarette.

2. A cigarette lighter comprising, in combination, a housing, a mouth piece for blowing air into said housing, an air motor disposed within said housing in the path of air movement therein to be driven thereby, an electrical generator driven by said motor to generate an E. M. F., a lateral compartment annexed to said housing for receiving a cigarette, a heating element disposed in the lower portion of said lateral compartment and adapted to sustain a cigarette inserted into the compartment, the heating element being electrically connected to said generator, a switch to open and close the connection from the generator to the heating element, and means to direct the air blown into said housing against the lower end of said cigarette.

DAVID B. ROSENBLATT.

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